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ABSTRACT

Statistics for 33,902 of 1971 engineering graduates were used to describe job prospects of the graduates. Findings include: (1) engineering graduates were largely successful in finding jobs or carrying out other plans; (2) about one out of every five engineering graduates at the bachelor's and master's degree levels had plans to continue full-time study; (3) the number of bachelor's degree graduates entering military service increased in 1971 to 14 percent--the highest since 1958; (4) at all levels except the doctorate, salary offers averaged slightly higher than in 1970, ranging from $632 per month to $1340; (5) salaries for chemical engineering were highest and civil engineering lowest at all three degree levels; (6) the average salary for women engineering graduates at the bachelor's level was a bit higher than the overall average for male engineers; and (7) compared to graduates in other disciplines, the prospects of engineers were outstanding. (JG)

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ENGINEERING MANPOWER BULLETIN
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This is the twentieth in a series of Bulletins designed for leaders in industry, government, and education whose responsibilities include an awareness of developments affecting engineering and technical manpower. In this issue we present the highlights of the Engineering Manpower Commission survey of the 1971 class of engineering and technology graduates and some of the trends indicated by the series of placement surveys conducted by EJC since 1958.

JOHN D. ALDEN, *Executive Secretary*
Engineering Manpower Commission
of Engineers Joint Council

JOB PROSPECTS OF 1971 GRADUATES

Placement Status of BS Engineering Graduates, 1971

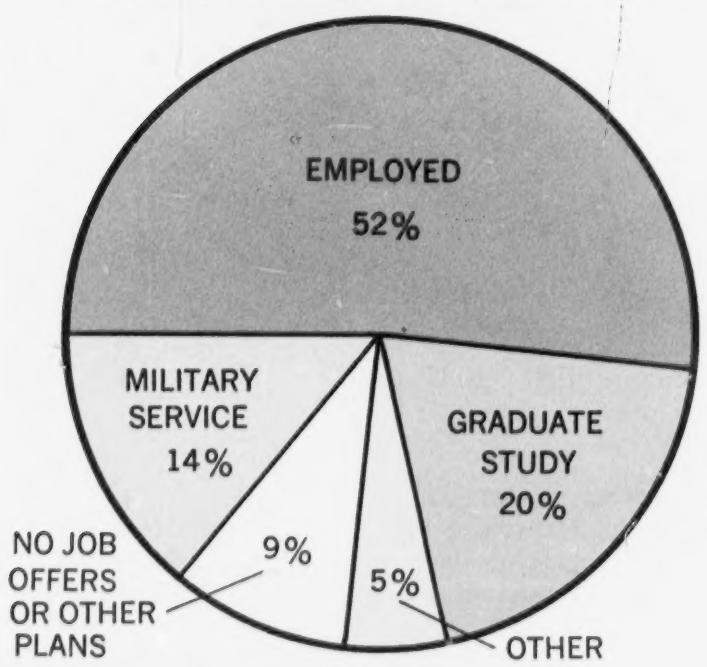

CHART 1

Placement Status of 1971 Engineering and Technology Graduates

	Engineering Degree			Technology Degree	
	Bachelor	Master	Doctor	Associate	Bachelor
EMPLOYED	52%	63%	84%	47%	60%
FULL-TIME STUDY	20	21	3	29	5
MILITARY SERVICE	14	8	3	8	13
OTHER PLANS	2	3	4	1	4
CONSIDERING JOB OFFERS	3	2	3	8	8
NO OFFERS OR PLANS	9	2	4	7	11

TABLE 1

JOBS FOR MOST

Although the class of 1971 probably had the least favorable job prospects since 1958, statistics compiled by the Engineering Manpower Commission of Engineers Joint Council from 196 schools indicate that engineers and engineering technicians at all levels, from two-year associate degree to doctor's degree graduates, were largely successful in finding jobs or carrying out other plans. By comparison with other groups engineering graduates did extremely well both in terms of finding employment and in salaries offered.

At the bachelor's degree level, as shown in Chart 1, 9% of the engineers were without job offers or other firm plans by the time of graduation. Although this may not appear high in absolute terms, it is about double the figure for 1970 and in sharp contrast to the boom years of 1965-1969 when practically every graduate was employed. Engineers with new master's and doctor's degrees were apparently in strong demand, with 2% and 4% respectively having no job offers or other plans. Two-year associate degree graduates also did well, with only 7% still job-hunting at graduation time, while for bachelors of technology the rate was 11%. Table 1 gives the placement statistics for all five degree levels. Note the wide variation in the percentage of graduates entering employment, ranging from 47% at the associate degree level to 84% at the doctor's. This is explained by the different placement patterns applying to each degree level, as described below.

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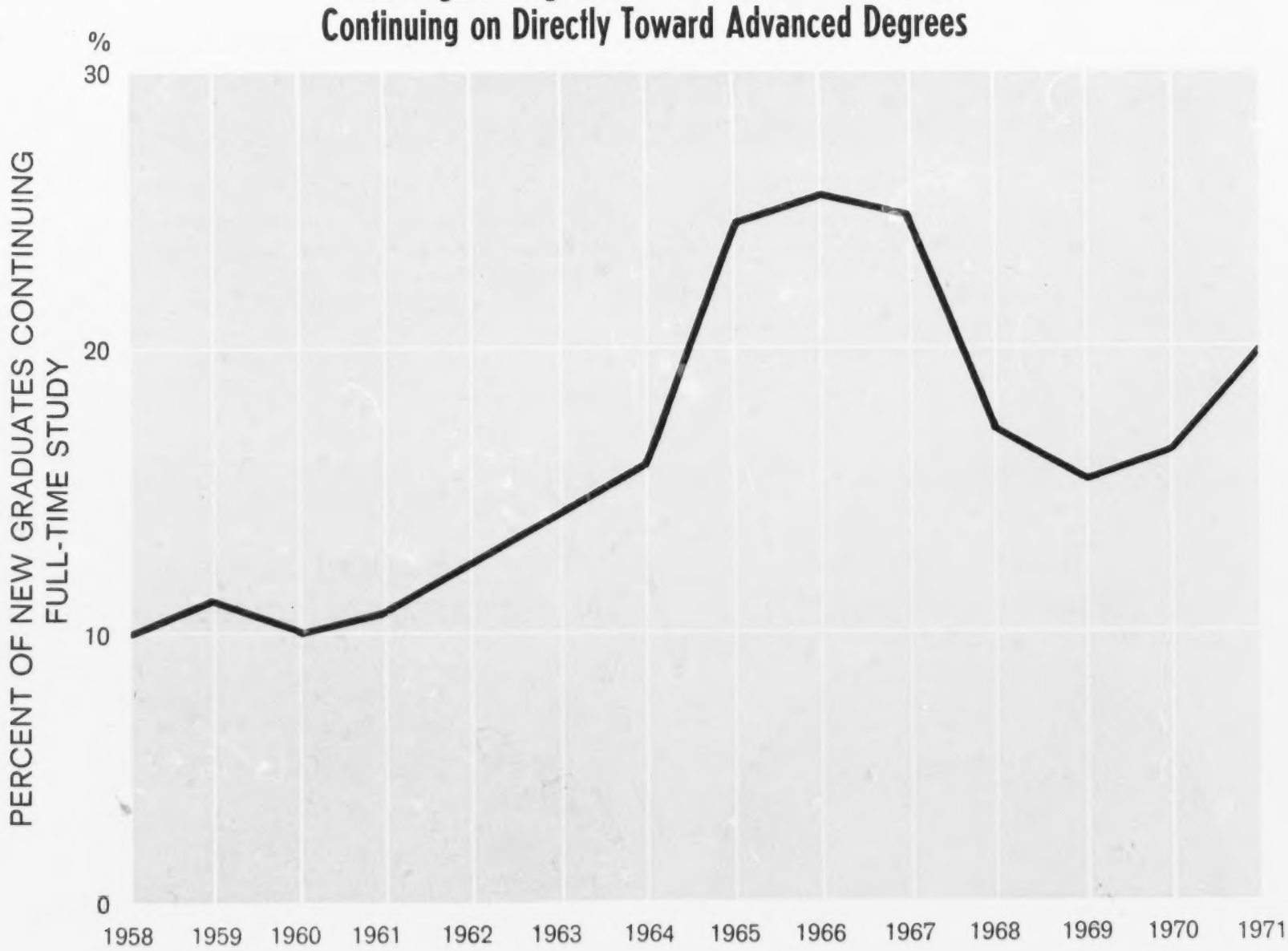

CHART 2

GRADUATE STUDY GAINS IN POPULARITY

About one out of every five engineering graduates at the bachelor's and master's degree levels had plans to continue full-time study. This represents an increase over last year for both groups. There is no evidence, however, that many engineering graduates sought advanced study because they were unable to find acceptable employment. The percentage of new graduates going on directly for advanced degrees peaked at 26% in 1966, when jobs were plentiful, and declined to a low of 16% in 1969 after Selective Service deferments for graduate students were eliminated. Since then the curve has started to rise again, as shown in Chart 2, but is still well below its former peak.

At the associate degree level 29% of the new graduates opted to continue full-time study toward a bachelor's degree. This is about the same percentage as in 1968 and 1970. 1969 was a low year for the same reason that caused master's and doctor's degree applicants to decrease—the draft. The high percentage of associate degree graduates continuing in study is especially noteworthy when it is recalled that most two-year technology curricula are designed primarily as terminal programs intended to prepare their graduates for employment as technicians.

MORE GRADUATES CALLED FOR MILITARY SERVICE

The number of bachelor's degree graduates entering military service increased in 1971 to 14%, the highest figure recorded since EMC started its placement surveys in 1958. The reason for the increase is undoubtedly the elimination of new occupational deferments after April 1970 and the introduction of the lottery system for selecting draftees. Also, engineering students have always provided a high percentage of ROTC enrollments. The increase of three percentage points in military demand for engineering graduates this year probably helped to stabilize employment somewhat by reducing the number of job seekers in a market that was already "soft." If this number of graduates had not gone into the armed forces, they would probably have had to join the group with no job offers. Military service is not as significant

Average Starting Salaries, 1971 Graduates

Degree Level	% Change from 1970	Dollars per Month
ASSOCIATE DEGREE IN TECHNOLOGY	+2.6	632
BACHELOR'S DEGREE IN TECHNOLOGY	+0.5	810
BACHELOR'S DEGREE IN ENGINEERING	+1.7	877
MASTER'S DEGREE IN ENGINEERING	+0.2	1010
DOCTOR'S DEGREE IN ENGINEERING	−2.9	1340

CHART 3

a factor at the advanced degree level, where many graduates are no longer draft-liable, nor at the associate degree level, where only 8% of the graduates were called.

SALARIES UP FOR MOST CATEGORIES

Graduates at all levels except the doctorate were offered salaries that averaged slightly higher than in 1970, ranging from $632 per month for associate degree graduates to $1340 for the doctors (Chart 3). Percentage changes varied from a 2.6% increase at the associate degree level to a 2.9% decrease at the doctor's level. The net effect was a slight compression in the differential between salaries at the upper and lower educational levels. It is of interest to note that the average engineering graduate in 1971 was offered a higher salary than his fellows in accounting, business, humanities, social sciences, mathematics, or the physical sciences. Even among MBA graduates, who tended to receive slightly higher dollar offers than other master's degree recipients, those with technical undergraduate degrees did about 6% better than those with a non-technical background.

Among the major curriculum areas, chemical engineering was highest and civil engineering lowest at all three degree levels. For the bachelor of technology graduates, on the other hand, civil technology topped all other curricula while industrial technology was lowest in dollar offers. At the associate degree level, chemical technicians received the highest average offers and automotive technicians the lowest among the programs surveyed. Most curricula, however, tend to cluster around the mean at all degree levels, so that differences in salaries from curriculum to curriculum are not particularly significant within the broad fields of engineering and technology.

Women engineering graduates, although few in number, were the aristocrats of their sex as far as salary offers were concerned, according to the College Placement Council. Their average of $885 per month at the bachelor's level was actually a bit higher than the overall average for male engineers and was far above any other group reported. Graduates of cooperative work-study programs also did well, with salary offers averaging $16 per month higher than regular BS engineers. Black engineers were reported to be in strong demand.

Average Starting Salaries of New Engineering and Technology Graduates 1961-1971

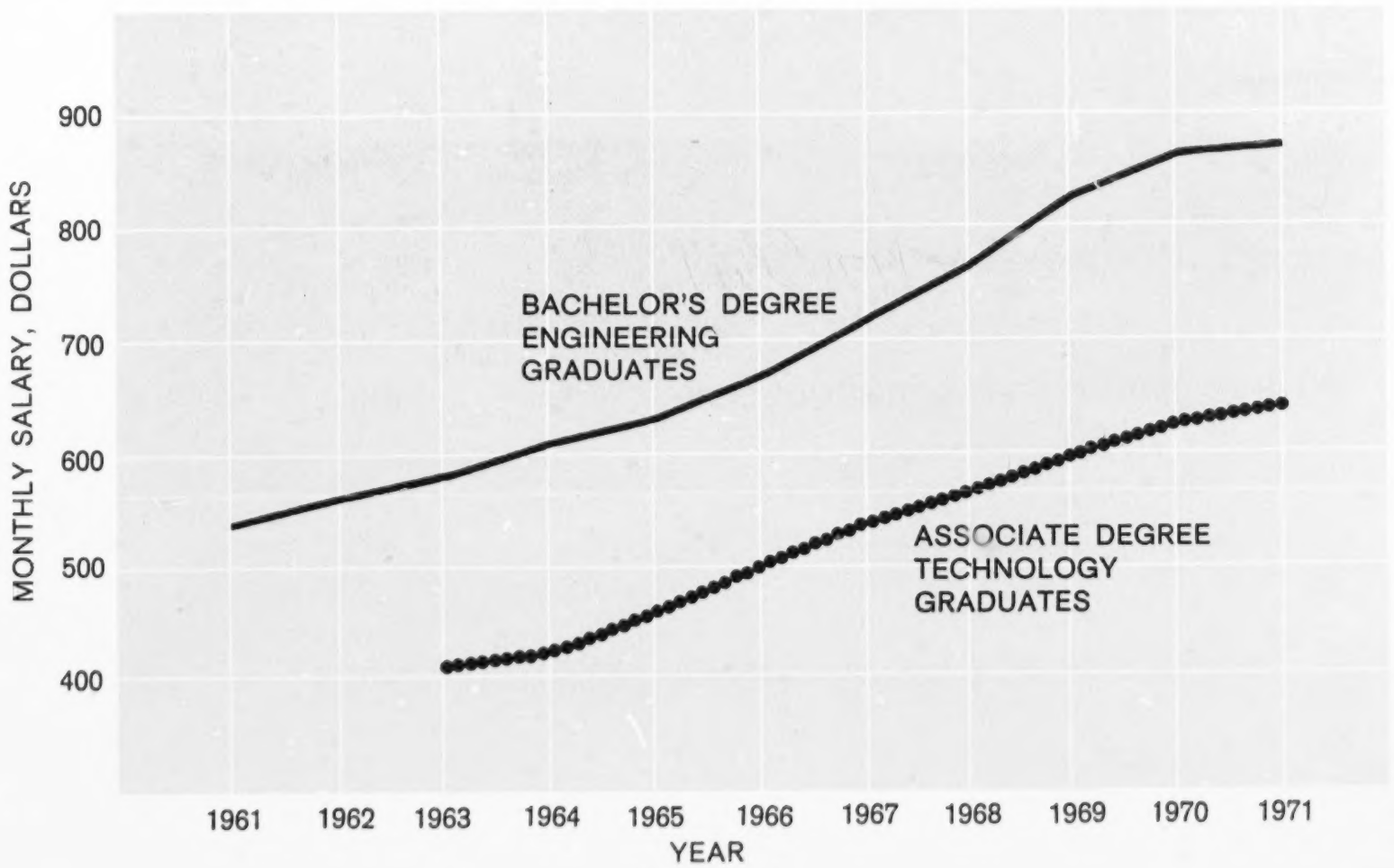

CHART 4

Chart 4 shows how average starting salaries for engineers and technicians have risen over the last decade. Although the rapid growth that prevailed from 1966 to 1969 has aparently slowed down, there is no reason to assume that the long range trend will not continue to be upward in the years ahead.

A WORD ABOUT THE SURVEY

EJC has surveyed the placement status of engineering graduates since 1958 and of technology graduates since 1967. Statistics for 1971 were based on data reported by 196 schools covering 33,902 graduates, including 13% for whom no information was available. Returns from schools such as military and maritime academies were not included, in order to make the data as nearly representative as possible.

Salary averages for technology graduates were calculated by EJC from 48 schools reporting 2,238 offers. Data on salary offers to engineering graduates were derived from the well-known annual surveys conducted by The College Placement Council, Inc.

Detailed results of the EJC placement survey together with a complete tabulation of engineering and technology degrees awarded during the school year ending in June 1971 are being published in the report *Engineering and Technology Graduates, 1971,* which may be ordered from EJC at $5.00 per copy prepaid.

THE OVERALL PICTURE

Despite widely reported declines in hiring activity and increased unemployment resulting from the 1970-71 economic slowdown, new engineering and technology graduates enjoyed relatively favorable job prospects in 1971. Starting salaries continued their long-term rising trend, although the increase was not as great as in recent years. Compared to graduates in other disciplines, the prospects of engineers and technologists were outstanding. In view of the facts demonstrated by the comprehensive EJC survey, press reports of the impending decline of the engineering profession must be regarded as highly exaggerated. There is every indication that the U.S. economy will continue to generate a firm demand for new engineering graduates in the foreseeable future.

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